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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,405	03/24/2004	Hiroyuki Umezawa	492322017000	3863

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EXAMINER

HOPKINS, ROBERT A

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/807,405

Applicant(s)

UMEZAWA ET AL.

Examiner

Robert A. Hopkins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 and 29-37 is/are pending in the application.
4a) Of the above claim(s) 32-37 is/are withdrawn from consideration.
5) ☒ Claim(s) 1-10, 21-26 and 29-31 is/are allowed.
6) ☒ Claim(s) 11, 12, 15 and 18-20 is/are rejected.
7) ☒ Claim(s) 13, 14, 16 and 17 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2-21-06, 3-16-06
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 1-31 in the reply filed on 11-14-05 is acknowledged.

Claims 32-37 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group II, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 11-14-05.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Objections

Claim 11 is objected to because of the following informalities: Claim 11 line 5 recites "nitride compounds". Examiner believes the limitation should read – nitrogen compounds -- , as noted by the limitation "nitrogen compounds" in depending claims 12-16. Appropriate correction is requested.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 11,12,15,18-20 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Kin et al(2003/0121864).

Kin et al teaches a water treatment method, wherein microparticle components of objects of removal are removed by filtering a fluid through a gel-form second filter formed on the surface of a first filter(ultrafiltration membrane 17), and nitride compounds contained in the fluid are removed by an electrochemical method(8). Kin et al further teaches wherein the microparticle compounds are removed after treating the nitrogen compounds. Kin et al further teaches wherein in the electrochemical method(electrocoagulation reaction tank 8), a pair of electrodes is immersed in the fluid and then electricity is applied across the electrodes to treat the nitrogen compounds. Kin further teaches wherein the objects of removal comprise a CMP slurry(paragraph 0001). Kin further teaches wherein the fluid is a solution containing indium or an indium compound.

Examiner notes that although a second filter formed of a gel film is not explicitly taught by Kin et al, the fluid is a wastewater from a CMP process which inherently includes a colloidal solution containing objects of removal. Examiner also notes that since the fluid is a wastewater from a CMP process, the electrodes of the electrocoagulation reaction tank (8) are capable of removing nitrogen compounds from the CMP fluid.

Allowable Subject Matter

Claims 1-10,21-26, and 29-31 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 1,3,4,21, and 22 include subject matter which was indicated as allowable in the previous office action. Claims 2 and 5-10 depend on claim 1 and hence are also allowed. Claims 23-26 and 29-31 depend on claim 21 or 22 and hence are also allowed.

Claims 13,14, 16,and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 13 recites "wherein the nitrogen compounds are treated after removing the microparticle components". Kin et al teaches treating the nitrogen compounds before the microparticle components. It would not have been obvious to someone of ordinary skill in the art to provide a step of wherein the nitrogen compounds are treated after removing the microparticle components because Kin et al does not suggest such a modification.

Claim 14 recites "wherein the microparticle components are removed at the same time as treating the nitrogen compounds". Kin et al teaches treating the nitrogen compounds before the microparticle components. It would not have been obvious to someone of ordinary skill in the art to provide a step of wherein the nitrogen compounds

are treated after removing the microparticle components because Kin et al does not suggest such a modification.

Claim 16 recites "wherein the nitrogen compounds are treated by the electrochemical method after adding halogen ions or a compound containing a halogen element to the fluid". Kin et al teaches adding hydrogen peroxide to the fluid. It would not have been obvious to someone of ordinary skill in the art to provide a step of after adding halogen ions or a compound containing a halogen element to the fluid because Kin et al does not suggest such a modification. Claim 17 depends on claim 16 and hence would also be allowable upon incorporation of claim 16 into claim 11.

Response to Arguments

Applicant's arguments filed 3-16-06 with regards to claim 11 have been fully considered but they are not persuasive.

Applicant argues no part of Kin discloses any electrochemical removal of nitrogen compounds. Applicant notes that all Kin teaches with respect to any electrochemical treatment is that "the iron electrode releases ferrous ions which undergo an electro oxidation reaction with H_2O_2 added in the previous adjustment tank while being converted into ferric hydroxide floccules".

Examiner notes that Kin et al is treating the same fluid(CMP wastewater; paragraph 0035) as is being treated in the current application. Examiner also notes that the wastewater to be treated in the current application contains nitrate ions, as discussed on page 19 lines 7 and 8 of the current specification. Therefore, if the CMP wastewater of the present application contains nitrate ions, then the CMP wastewater of

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Kin et al must also contain nitrate ions. Page 15 lines 19-20 of the current specification further discloses "a pair of electrodes 12 for treating nitrogen compounds by an electrochemical method". Examiner notes Kin et al provides for "an electrocoagulation reaction tank 8, which comprises plural pairs of cathode/anode therein, the material of which being stainless or iron. Examiner notes that the conversion of nitrates to nitrites and nitrites to ammonia in the current application is provided by a reaction with electrons at the cathode. Examiner notes that Kin et al includes a cathode, and the fluid to be treated is CMP wastewater, therefore such a conversion of nitrates to eventual ammonia does occur. Examiner also notes that the anode electrode is of an insoluble metal in the present application, and at the anode electrode side, active oxygen is generated from the surface of the anode electrode and nitrogen gas is generated by the nitrification of ammonia in the water to be treated, wherein the reaction is reaction C on page 20. Examiner notes Kin et al teaches an anode electrode of stainless material, wherein stainless material is an insoluble material. Therefore, examiner respectfully submits that after the reduction reactions at the cathode electrode of Kin et al, a conversion of ammonia to nitrogen and water is provided for at the stainless anode electrode, equivalent to reaction C on page 20 of the current specification.

Examiner furthermore respectfully submits that although Kin et al does not specifically disclose removing nitrogen compounds contained in fluid electrochemically, the fluid being treated(CMP wastewater) and the structural elements(electrodes) are the same as in the current application, therefore nitrogen compounds must be removed

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from the CMP wastewater of Kin et al. Examiner also notes section 2112 of the MPEP which states :

There is no requirement that a person of ordinary skill in the art would have recognized the inherent disclosure *at the time of invention*, but only that the subject matter is in fact inherent in the prior art reference. *Schering Corp. v. Geneva Pharm. Inc.*, 339 F.3d 1373, 1377, 67 USPQ2d 1664, 1668 (Fed. Cir. 2003) (rejecting the contention that inherent anticipation requires recognition by a person of ordinary skill in the art before the critical date and allowing expert testimony with respect to post-critical date clinical trials to show inherency); see also *Toro Co. v. Deere & Co.*, 355 F.3d 1313, 1320, 69 USPQ2d 1584, 1590 (Fed. Cir. 2004)("[T]he fact that a characteristic is a necessary feature or result of a prior-art embodiment (that is itself sufficiently described and enabled) is enough for inherent anticipation, even if that fact was unknown at the time of the prior invention.")

Examiner respectfully submits that although Kin et al may not have recognized the removal of nitrogen compounds by electrochemical method, the above analysis shows that such a process does occur in Kin et al.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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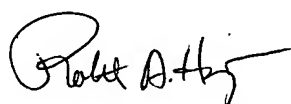
TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Hopkins whose telephone number is 571-272-1159. The examiner can normally be reached on Monday-Friday, 7am-4pm, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rah
March 24, 2006


ROBERT A. HOPKINS
PRIMARY EXAMINER
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